STATE OF NEVADA
Department of Conservation & Natural Resources
DIVISION OF ENVIRONMENTAL PROTECTION
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Draft Guidance for Mine-Site Petroleum-Contaminated Soil (PCS) Management Plans

Introduction

This guidance document describes the procedure and requirements necessary to obtain an approved mine-site Petroleum-Contaminated Soil (PCS) Management Plan. As such, it supersedes the April 1995 guidance document entitled, "Mining Sites, Hydrocarbon Contaminated Soil Definitions and Guidelines," which outlined a previous program whereby General and Individual Hydrocarbon Permits were issued for mine-site treatment of PCS. Under the previous program, PCS was required to remain on approved containment while hydrocarbon levels were reduced by active treatment (e.g., via bioremediation, etc.). Under the new program no permits or fee payments are required, but the State of Nevada Division of Environmental Protection (NDEP) must approve a site PCS Management Plan in writing before the operator may begin treatment or disposal of PCS at a mine-site. The new program requires up-front characterization of the PCS generated at each source, followed by an approved method and location of treatment or disposal (on or off of containment) based on a formal evaluation of risk to the environment.

Previously issued General and Individual Hydrocarbon permits will be gradually phased out and replaced by PCS Management Plans during a transition to the new program.

After the transition period, no PCS may be treated or disposed of at a mine-site without first obtaining an approved PCS Management Plan. Operators who do not have an approved PCS Management Plan must dispose of PCS at an off-site facility authorized to receive such material. An exception is PCS generated from an accidental petroleum release that cannot be excavated (due to intervening structures, depth, etc.) and for which a formal "A-K" proposal for no further corrective action, pursuant to Nevada Administrative Code (NAC) 445A.227.2.A-K, is approved by NDEP.

Phase-Out of Previous Program

In April 1995, NDEP issued the previous guidance document along with statewide General Mining Bioremediation Facility Permit GNV041995, which authorized construction, operation, and closure of standardized bioremediation cells for mine-site treatment of PCS. Shortly thereafter, NDEP also began issuing Individual Hydrocarbon Permits, which authorized other means of mine-site treatment of PCS, such as stemming, roasting, and non-standardized bioremediation. In November 2005, NDEP created the new program to address various shortcomings with the previous program, including the difficulty in reducing Total Petroleum Hydrocarbon (TPH) concentrations below 100 mg/kg via bioremediation, and the lack of a site-specific evaluation of the environmental risk posed by the PCS.

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Previously issued General and Individual Hydrocarbon permits will be gradually phased out and replaced by PCS Management Plans during a transition to the new program. Therefore, each operator who holds a hydrocarbon permit (General and/or Individual) for a mine-site must submit an application for a PCS Management Plan for the site. During the transition period, Permittees may continue to operate under the previous hydrocarbon permits until their PCS Management Plans are approved. Upon approval, the PCS Management Plan will replace the previous hydrocarbon permit(s) for that site.

NDEP will develop a phased submittal schedule specifying a submittal deadline for each Permittee during the transition period. The submittal schedule and this guidance document will be distributed to all Permittees.

PCS Management Plans – General Information

A PCS Management Plan shall describe how PCS will be treated and/or disposed of at the mine-site in such a way that it will not degrade waters of the state or pose an unacceptable risk to public health or the environment. The Plan must provide site-specific data to demonstrate that the PCS will not cause such degradation or unacceptable risk. Only PCS that is not saturated with petroleum is acceptable for management under a PCS Management Plan. A hazardous waste determination must be included in the Plan, because hazardous waste must be identified and handled separately in accordance with applicable regulations. After transition to the new program, management via uncontrolled processes, such as the use of PCS as a blast stemming material, will not be accepted unless it is adequately demonstrated that such practices will not degrade waters of the state, pose an unacceptable risk to public health or the environment, or result in objectionable nuisance characteristics.

Central to a PCS Management Plan is an evaluation of the site, and of the character of the PCS, pursuant to NAC 445A.22705.1,

> "Except as otherwise provided in NAC 445A.22715, if an owner or operator is required to take corrective action pursuant to NAC 445A.227, the owner or operator may conduct an evaluation of the site, based on the risk it poses to public health and the environment, to determine the necessary remediation standards or to establish that corrective action is not necessary. Such an evaluation must be conducted using Method E1739-95, adopted by the American Society for Testing and Materials, as it exists on October 3, 1996, or an equivalent method approved by the division."

Note that this evaluation goes beyond that required for an "A-K" proposal for no further corrective action pursuant to NAC 445A.227.2. An "A-K" proposal for no further corrective action may be appropriate for PCS from an individual accidental petroleum release that cannot be excavated (due to intervening structures, depth, etc.), but such a proposal is not applicable to PCS that has already been excavated, or to PCS that was produced in a non-accidental waste stream (e.g., truck washbay sediment). Whereas an approved "A-K" proposal authorizes the operator to leave unexcavated PCS in place, an approved PCS Management Plan authorizes the operator to manage PCS from excavations or other waste streams in an environmentally acceptable manner.

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PCS Management Plans – Specific Requirements

PCS Management Plans must contain information including, but not necessarily limited to, the following items.

1. The results of a hazardous waste determination performed on each source of PCS that will be managed under the Plan. The determination must be performed in accordance with 40 CFR 262.11 using operator knowledge and/or analytical testing methods described in EPA publication SW-846. If the PCS is a hazardous waste, it must be handled and disposed of pursuant to applicable regulations and will be excluded from the PCS Management Plan.

2. An initial characterization performed on a representative sample of PCS from each source that will be managed under the Plan. The characterization must include all constituents of concern to be evaluated in the risk analysis, and must utilize EPA-approved analytical methods. NDEP recommends the following analyses to comply with the requirements of both items 1 and 2.
   - Volatile Organic Compounds (VOCs) by EPA method 8260B and Semi-Volatile Organic Compounds (SVOCs) by EPA method 8270C.
   - Eight metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver) by Toxicity Characteristic Leaching Procedure (TCLP) using an extraction via EPA method 1311 and analyses via EPA method 6010B or 6020 for all except mercury, which may be analyzed via EPA method 6020 or 7470A.
   - Total Petroleum Hydrocarbons (TPH) purgeable (TPHp) and extractable (TPHe) by EPA method 8015 Modified.

   Depending on the results obtained from these analyses, and the risk evaluation method chosen, additional analyses for certain VOCs or SVOCs by TCLP may be required.
3. Submit design plans stamped by a professional engineer registered in Nevada for a holding area containment pad, or as-built plans if a previously approved and constructed facility will be used for a holding pad. NDEP recommends concrete construction, or equivalent, unless otherwise approved, to provide adequate durability during repeated loading/unloading cycles.

4. Propose routine screening of PCS on the holding pad utilizing a specified sample density (the number of samples per volume of PCS) and specified analyses that are representative of the PCS. NDEP recommends a sample density of one sample for every 50 to 200 cubic yards of PCS. The analytes must be selected based on the initial characterization data and the risk analysis. They should be diagnostic of the risk posed by the PCS, but must also include TPH. PCS from different source types must be segregated on the holding pad as noted in item 7 below.
5. PCS from mixed sources (e.g., PCS on existing bioremediation pads) may require screening using a greater sample density, and possibly additional analytes.

6. Propose a maximum residence time limit, and a maximum volume limit, for PCS on the holding pad. NDEP recommends a maximum residence time of 180 days, and a maximum volume limit equivalent to a six foot thick layer with adequate set-back from the pad edges. After analytical results are obtained, the PCS must be removed from the holding pad and managed pursuant to the Plan based on the results.

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7. Commit to keeping PCS from previously uncharacterized sources, and any PCS that may contain gasoline (regardless of whether it was previously characterized or not), physically segregated from other PCS, and individually labeled, while it is on the holding pad (e.g., separately labeled cells for each of the following: gasoline sources, uncharacterized new sources, and previously characterized diesel/oil/grease sources). Uncharacterized sources also need a hazardous waste determination (see item 1 above).

8. Propose on-site material placement location(s) if PCS is below screening levels. Screening levels must be established via risk analysis for each proposed placement location, or consist of accepted values such as those in the EPA Region IX PRG table (Soil Screening Levels), if appropriate. The screening levels must take into account risks associated with potential migration of constituents of concern from the original placement location, if appropriate.

9. Include a brief conceptual model identifying the exposure pathway(s) of concern for each proposed placement location, and a statement regarding the applicability of the selected screening method to the pathway. Include an identification of other pathway(s) of concern that may result from migration of constituents from the original placement location, as appropriate.

10. Address ecological risk for each placement location (i.e., risk posed to terrestrial, aquatic, or avian life).

11. Include a provision that PCS will not be placed in the proposed placement location(s) if it exhibits objectionable nuisance characteristics (e.g., visually unacceptable, strong petroleum odor, etc.).

12. Propose contingency management procedures for PCS that exceeds placement criteria (e.g., screening levels, nuisance characteristics, etc.).

13. Propose implementation of Best Management Practices (BMPs) at placement location(s) to address stormwater runoff issues, such as erosion and migration of PCS after it is placed. Commit to placing PCS away from drainages.

14. Include a commitment to submit As-Built plans stamped by a professional engineer registered in Nevada for the holding pad, and any new construction, within 30 days after completing construction.

Optional Additions to PCS Management Plans

15. A proposal may be included to change the sample interval and/or specific analytes after at least four sampling events from a PCS source, if the owner or operator can demonstrate consistent results.

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Proposed Implementation Plan

- Distribute draft guidance to stakeholders, including Nevada Mining Association (NMA) and industry for review and comments.
- Concurrent with distribution for comments, implement on a trial basis for selected sites that already have PCS Management Plans in development.
- Review comments and evaluate pilot applications, and make appropriate revisions to draft guidance.
- Issue final guidance document and develop submittal schedule for existing Permittees.
- Modify existing Water Pollution Control Permit language (Part I.L.) that makes reference to Hydrocarbon Permits.

-- End --

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